

Programmer Analyst Job Family

JOB TITLE	PROGRAMMER ANALYST I Support Staff	PROGRAMMER ANALYST II Admin Level 2	PROGRAMMER ANALYST III Admin Level 3	SENIOR PROGRAMMER ANALYST
Promotion Criteria	Entry Level	Typically >1 year programming experience; demonstrated ability to learn; effective communication skills; demonstrated ability to understand user requirements and accurately translate into programs; ability to work independently	Typically >3 years programming experience. Developing depth in one technology or reasonable depth in several. Demonstrated ability to plan and lead projects, working effectively with clients and others in IS&T. .	Typically >8 years programmer analyst experience. Has made significant contribution to significant projects. Typically an 'expert' in at least one technology domain. Can provide leadership to large, complex activities, knowing when to engage others and effectively communicating status and technical information.
Position Overview Statement:	Assists in the development, writing and testing of application software from specifications for new and modified systems.	Develops, implements and tests application software and related bridges and feeds.	Designs, develops, implements and tests application software and related bridges and feeds. Determines programming requirements for systems. Designs flexible client-server security frameworks.	Determines programming requirements for systems. Designs flexible client-server frameworks. Analyzes and improves performance of software programs and analyzes requirements for data exchange between application software and other MIT systems; determines viable alternatives; makes recommendations; and designs, specifies, obtains consensus on, and implements solutions. (e.g., solutions usually require writing programs in various computer languages.) <i>Programming languages may include: C/C++, Java, Perl, Shell scripting, SQL, etc.</i> <i>Databases may include: Oracle, SAP, Hyperion Essbase, etc.</i> <i>Operating platforms may include: Mac, Windows, Linux, UNIX, Solaris, etc.</i>
Principal Duties and Responsibilities	<ul style="list-style-type: none"> • Assists in the analysis and development of modifications to existing software programs. • Writes and tests new programs from specifications. • Modifies and tests existing programs from specifications. • Documents new programs or modifications to existing programs according to departmental 	<ul style="list-style-type: none"> • Responsible for design and development of interface programs. • Analyzes current and continuing information systems requirements. • Writes programs to extract, translate, load, and verify data. • Designs and develops programs to address requirements for data conversions and other data processing. • Tests and debugs applications in conjunction with business 	<ul style="list-style-type: none"> • Provides technical support for MIT's software implementation. Particular emphasis will be on programming languages and developing knowledge of programming transactions. • Designs and develops interface programs. • Analyzes current and continuing information systems requirements. • Designs and develops programs to address requirements for data 	<ul style="list-style-type: none"> • Establishes project plans and project schedules per established standards. • Reviews project deliverables for conformance to established standards. • Design new uses for and performance tune database(s). • Assists in developing and implementing technical standards. • Maintains close liaison with data providers and recipients, other team members, and other members of the department. • Analyzes requirements for, specify

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	<p>standards.</p> <ul style="list-style-type: none"> Assists users in solving programs and answers systems-related questions. Performs other related tasks as assigned by area manager. 	<p>analysts and users.</p> <ul style="list-style-type: none"> Develops documentation for the programs written or modified. Serves as a resource to consultants and customers. Participates in system upgrades and other support activities as needed. 	<p>conversions.</p> <ul style="list-style-type: none"> Tests and debugs applications in conjunction with business analyst and users, and develops programs for automatic correction of erroneous data. Works with MIT staff to ensure adherence to prevailing programming standards when performing analysis, writing documentation, and testing components. Works with business and operations personnel to ensure business requirements and system needs are met (including technical and operational documentation). Serves as a resource to consultants and MIT customers. Participates in system upgrades and other support activities as needed. 	<p>and develop bridges and feeds.</p> <ul style="list-style-type: none"> Interacts with consultants to achieve project goals. Provides on-call and remote support as needed. May interact with consultants.
Supervision Received:	<p>Work is closely monitored by supervisor/manager; detailed instructions and procedures are provided.</p>	<p>Work progress is monitored by supervisor/manager; incumbent follows precedents and procedures, and may set priorities and organizes work within general guidelines established by supervisor/manager.</p> <p>As employee masters position, employee selects from existing practices to determine specific methods and carries out work activities independently; management is available to resolve problems or provide guidance as needed.</p>	<p>Employee determines appropriate work methods, plans, schedules, and prioritizes work based on goals and objectives to be achieved, within standards of work unit; carries out work activities independently. Consults with senior management to resolve unusual problems or to provide general direction.</p>	<p>Employee sets own goals and determines how to accomplish results with few or no guidelines to follow; precedents may exist; senior management provides broad guidance and overall direction.</p>
Supervision Exercised:	<p>Not responsible for supervising others.</p>	<p>Not responsible for directly supervising others. May functionally supervise staff as a project leader.</p>	<p>May supervise Analyst Programmer I/II staff. Guides or directs work of others who may perform similar or related work. Plans, organizes, prioritizes, and schedules work. Reviews work quality and output and</p>	<p>Supervises work of others, including planning, assigning, and scheduling work. Reviews work and ensures quality standards are met. Trains staff and oversees their productivity. Coaches and manages people, and/or provides project leadership.</p>

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			processes to follow. May participate in interviewing potential candidates, contribute to performance reviews, make recommendations for training, and other developmental plans. May provide project leadership.	May offer recommendations for hiring, termination and pay adjustments, but does not have responsibility for making these decisions.
JOB IMPACT				
Overall Impact	Work generally has limited immediate impact, affecting one or two individuals at any one time or affecting a large group as a result of a specific short term action. Individual contributes to team processes and procedures.	Work often requires multiple interactions with customers over time. Individual efforts seen as representing and contributing to team results.	Role has short- to intermediate-term impact IS&T wide. Shares responsibility for the results of an entire functional area.	Work generally has longer term impact, and significantly affects how business is done in a functional area within IS&T or a major customer. Individual has significant share of responsibility for the results of team.
Contacts Required to Perform Job	Frequent contact with users at MIT.	Work in cooperation with other developers, analysts, configurers, managers, and consultants on the development team. Interact with staff in MIT central administrative offices, as well as administrative staff in academic and research areas to define system design and programming requirements.	Work in cooperation with other developers, analysts, configurers, managers, and consultants on the development team. Interact with staff in MIT central administrative offices, as well as administrative staff in academic and research areas to define system design and programming requirements.	Maintain close liaison with data providers and recipients, other team members, department management, and other members of the department. Interact with software vendors regarding the installation and maintenance of their products. Interact with software consultants to facilitate the development process and knowledge transfer. Exchange information with developers at other sites as another way of learning.
QUALIFICATIONS/ TECHNICAL SKILLS:				

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<p>Qualifications</p>	<p>Sufficient schooling or work experience to demonstrate analytical, and problem solving skills, and ability to learn and apply technology. Also ability to communicate effectively, and to work in a team..</p>	<p>Proven ability to develop applications in multiple programming environments is required. 3 years experience in programming in a client-server environment, and experience with object-oriented development environments is preferred. Must have solid programming skills. At least 2 years experience with data analysis, design and implementation, including working with end users to effectively assess business requirements and define programming needs to support redesigned processes. Familiarity with security requirements, web services, service-oriented architecture, design patterns, multi-threaded systems, and automated unit testing.</p>	<p>At least 4 years of experience in the development and implementation (including project leadership) of online and batch applications, preferably in an academic and/or administrative environment. At least 5 years experience with data analysis, design and implementation, including experience working with end users to gather and interpret requirements. At least 3 years of programming and design experience. In-depth knowledge of security requirements, web services, service-oriented architecture, design patterns, multi-threaded systems, and automated unit testing. Ability to learn new technologies within a few weeks. Must have solid platform skills. Bachelor's degree preferred.</p>	<p>At least 8 years of programming experience including an understanding of data structures, data encoding, operating systems, and synchronization techniques required. Knowledge of business procedures and their interrelationships as well as an overall knowledge of technical disciplines recommended. Advanced knowledge of security requirements, web services, service-oriented architecture, design patterns, multi-threaded systems, and automated unit testing. Must have solid platform skills. Ability to learn new technologies within a few weeks. Bachelor's degree preferred. Experience in higher education environment desired. Strong design and programming skills required.</p>
<p>Knowledge, Skills & Expertise</p>	<p>Requires working knowledge, basic skills, and the ability to understand and follow simple written or oral instructions.</p>	<p>Requires knowledge of learned routines, procedures, practices and more complex skills. Training in certain procedures or equipment may be required. May require knowledge of MIT's policies and procedures.</p>	<p>Requires full working knowledge of job responsibilities, procedures, practices; advanced training, or basic knowledge in a professional field. Requires general understanding of purpose and operations outside own work unit.</p>	<p>Requires a thorough understanding of both theoretical and practical aspects of own professional discipline. Requires in-depth understanding of the purpose and operations outside own area. Understands internal/external clients; may require awareness of external trends and best practices.</p>
<p>Critical Thinking & Problem-Solving</p>	<p>Problems are simple and recognized as similar to past experiences and precedents. Chooses from established alternative approaches to find a solution. Makes suggestions to improve work methods and procedures.</p>	<p>Deals with somewhat complex problems that must be broken down into manageable pieces. Sees relationships between problem components and prioritizes them. Utilizes knowledge, experience and available resources to find solutions. May participate in development of improvements and help implement change.</p>	<p>Helps others in clarifying somewhat complex problems; adapts or modifies established approaches. Identifies and selects appropriate tools, data, and analysis techniques to diagnose problems and develop solutions. Balances competing short- and long-term goals within one's area in alignment with the larger area's direction and objectives.</p>	<p>Recognizes problems or situations that are new or without clear precedent. Finds solutions using a systematic, multi-step approach. Primarily responsible for developing improvements and innovations to enhance performance.</p>
<p>Collaboration</p>	<p>Contribution is limited to performing own duties on a timely basis in an effective manner. Expresses one's</p>	<p>Collaborates with team; shares relevant information with those who may be affected by decisions. Participates in formal</p>	<p>Within one's unit or sphere of operation, determines people who are critical to accomplishing results, and may</p>	<p>Actively seeks help in gathering resources, solicits input, and uses a variety of techniques to reach a solution. Leads groups in setting</p>

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	ideas and listens to ideas of others. Keeps appropriate people informed and up-to-date.	or informal group problem solving for immediate issues.	bring them together to problem solve or share workload. May lead groups through process of problem solving, soliciting ideas and opinions to form recommendations or action plans. Works to identify and solve issues in the group.	goals and monitors progress. Identifies need for outside support.
Communication Effectiveness	Interacts with others, employing a communication style appropriate to the person or audience. Seeks additional information to enhance understanding. Communicates basic established processes and procedures, formally or informally. May initiate and compose various types of basic business communication.	May develop factual presentations in order to inform and educate. Translates technical or procedural information into specifications or action plans. Conveys technical or complex information to others in non-technical terms.	Writes and presents reports, contracts and/or proposals for internal and/or external audiences. Interprets other viewpoints and assimilates them into work processes. Formally transfers technical or administrative knowledge to others.	Motivates others to action or addresses delicate situations, requiring tact and diplomacy using written and verbal skills. Identifies common themes, makes inferences and draws conclusions. Promotes knowledge of own area to gain support for on-going and future initiatives.
Decision Making	Duties and activities covered by specific instructions, standard practices and established procedures that generally require little or no interpretation.	Duties and activities covered by specific instructions and established work practices that require some interpretation.	Decision making guided by general instructions and practices requiring interpretation. May make recommendations for solving problems of moderate complexity.	Decision making guided by specific policies and objectives within which frequent decisions are required. Assists in formulating recommendations on difficult problems.
Influencing and Leading	Seeks opportunities and sets goals for own development. Identifies and learns from mentors/developmental advisors.	Serves as a mentor/developmental advisor and/or training resource to less experienced staff, providing an example with regard to quality of work. May ensure that others comply with established standards within one's own work unit. May provide guidance in routine tasks.	Establishes and leads project timelines or short-term goals. May have formal supervisory and/or coaching responsibility in a work unit. Motivates others towards completion of tasks and assignments. Helps others to think through alternatives and choices.	Provides process and project leadership; may have formal supervisory responsibilities..

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<p>Responsibility & Accountability</p>	<p>Work affects own work unit. Established departmental methods are followed; works within job specific deadlines and schedules set by supervisor. Escalates more complex issues.</p>	<p>Develops specific goals for one's own work. Seeks out and identifies multi-faceted problems and opportunities, taking immediate action to address them. Recognizes immediate obstacles to completing work. Initiates action to address a need without being directed.</p>	<p>Work significantly affects multiple units within a single department. Job has short- to intermediate-term impact. Follows departmental procedures to complete work, but may recommend changes to departmental processes. Often prioritizes own work; work is reviewed at key stages by manager or team. Anticipates consequences of actions, potential problems, or opportunities for change.</p>	<p>Work significantly affects a Department or large functional area within a School or Central Administrative area. Prioritizes projects; follows departmental processes. Acts decisively in critical situations or to circumvent a potential problem.</p>